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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/770,258	02/02/2004	Ming-Szu Chan	10113711	9591

34283 7590 05/19/2006

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EXAMINER	
CHEN, WEN YING PATTY	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 05/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/770,258	CHAN, MING-SZU	
	Examiner	Art Unit	
	W. Patty Chen	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's Amendment filed Feb. 28, 2006 has been received and entered. Claims 21-22 are newly added per Amendment filed. Claims 1-22 are now pending in the current application.

Claim Rejections - 35 USC § 103

Claims 1-3, 7-10 and 14-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weindorf et al. (US 2002/0130985) in view of Nakatsuka (US 6208521).

With respect to claim 1: Weindorf et al. disclose in Figure 2 a liquid crystal module comprising:

a body (shown in Figure 3, element 302); and

a circuit board (element 202, which corresponds to Figure 3 element 316) disposed on the body, having a substrate (Paragraph 0032), and

an LED (element 204) and a Zener diode (element 206, wherein the Zener diode is part of the LED drive circuit as described in Paragraphs 0047-0048) wherein the LED and the Zener diode are juxtaposed on the lead wires corresponding to each other (Paragraph 0030 and Figure 2, wherein the LED 204 is placed next to the control circuit 206).

Weindorf et al. fail to specifically disclose that the lead wires are enclosed by the substrate such that a plurality of openings are formed in the substrate exposing the lead wires.

However, Nakatsuka disclose in Figure 1(b) a substrate (element 2) enclosing a plurality of lead wires (elements 4a-4c) and a plurality of openings (elements 6 and 7) in the substrate exposing the lead wires, such that semiconductor devices are able to be mounted and connected on either the same or opposite sides of the substrate (Column 6, lines 1-6).

Therefore, it would have been obvious at the time the invention was made to construct a liquid crystal module as taught by Weindorf et al. wherein a plurality of leads are enclosed by the substrate comprising of plurality of openings exposing the leads as taught by Nakatsuka, since Nakatsuka teach that such film carrier allows the forming of laminated structure of semiconductor parts with using only one single film carrier for connecting the semiconductor parts (Column 2, lines 35-47).

As to claim 2: Weindorf et al. further disclose in Paragraph 0039 that the Zener diode is coupled to the lead wires by welding (wherein the LED and the driving circuitry are soldered to the circuit board).

As to claim 3: Weindorf et al. further disclose that the body (as shown in Figure 3, element 302) is rectangular.

With respect to claims 7 and 8: Weindorf et al. disclose in Figure 1 a liquid crystal module comprising:

a body (such as shown in Figure 3, element 302); and

a circuit board (element 102, which corresponds to Figure 3 element 316) disposed on the body, comprising a substrate (Paragraph 0032) having a first side and a second side, a plurality of lead wires with a plurality of openings formed on both sides of the substrate exposing the lead

wires (Paragraph 0025, wherein signal wires are provided on the flexible circuit board and are exposed by the thermal vias, which are openings of the circuit board),

an LED (element 104) and a Zener diode (Paragraph 0025, wherein the Zener diode is part of the LED drive circuit as described in Paragraph 0048, which is placed directly beneath the LED) each coupled to the lead wires through the openings, wherein the LED is coupled to the lead wires through the openings on the first side, and a Zener diode coupled to the lead wires through the openings on the second side, wherein the LED and the Zener diode are disposed on the lead wires on the first side and the second side respectively (Paragraph 0025, wherein the Zener diode/control circuit is directly beneath the LED).

Weindorf et al. fail to specifically disclose that the lead wires are enclosed by the substrate such that a plurality of openings are formed in the substrate exposing the lead wires.

However, Nakatsuka disclose in Figure 1(b) a substrate (element 2) enclosing a plurality of lead wires (elements 4a-4c) and a plurality of openings (elements 6 and 7) in the substrate exposing the lead wires, such that semiconductor devices are able to be mounted and connected on either the same or opposite sides of the substrate (Column 6, lines 1-6).

Therefore, it would have been obvious at the time the invention was made to construct a liquid crystal module as taught by Weindorf et al. wherein a plurality of leads are enclosed by the substrate comprising of plurality of openings exposing the leads as taught by Nakatsuka, since Nakatsuka teach that such film carrier allows the forming of laminated structure of semiconductor parts with using only one single film carrier for connecting the semiconductor parts (Column 2, lines 35-47).

As to claim 9: Weindorf et al. further disclose in Paragraph 0039 that the Zener diode is coupled to the lead wires by welding (wherein the LED and the driving circuitry are soldered to the circuit board).

As to claim 10: Weindorf et al. further disclose that the body (as shown in Figure 3, element 302) is rectangular.

With respect to claims 14-17 and 19: Weindorf et al. disclose in Figure 1 a liquid crystal module comprising:

a body (such as shown in Figure 3, element 302); and

a circuit board (element 102, which corresponds to Figure 3 element 316) comprising:

an insulating substrate (Paragraph 0032), having a first side and a second side, a plurality of lead wires with a plurality of openings formed on both sides of the substrate exposing the lead wires (Paragraph 0025, wherein signal wires are provided on the flexible circuit board and are exposed by the thermal vias, which are openings of the circuit board),

an LED (element 104); and

a Zener diode (Paragraph 0025, wherein the Zener diode is part of the LED drive circuit as described in Paragraph 0048, which is placed directly beneath the LED) each coupled to the lead wires through the openings, wherein the LED is coupled to the lead wires through the first openings on the first side, and a Zener diode corresponding to the LED is coupled to the lead wires through the second openings on the second side, wherein the LED and the Zener diode are disposed on the lead wires on the first side and the second side respectively, juxtaposed on the lead wires (Paragraph 0025, wherein the Zener diode/control circuit is directly beneath the LED).

Weindorf et al. fail to specifically disclose that the lead wires are enclosed by the substrate such that a plurality of openings are formed in the substrate exposing the lead wires.

However, Nakatsuka disclose in Figure 1(b) a substrate (element 2) enclosing a plurality of lead wires (elements 4a-4c) and a plurality of openings (elements 6 and 7) in the substrate exposing the lead wires, such that semiconductor devices are able to be mounted and connected on either the same or opposite sides of the substrate (Column 6, lines 1-6).

Therefore, it would have been obvious at the time the invention was made to construct a liquid crystal module as taught by Weindorf et al. wherein a plurality of leads are enclosed by the substrate comprising of plurality of openings exposing the leads as taught by Nakatsuka, since Nakatsuka teach that such film carrier allows the forming of laminated structure of semiconductor parts with using only one single film carrier for connecting the semiconductor parts (Column 2, lines 35-47).

As to claim 20: Weindorf et al. further disclose in Figures 1 and 4 and Paragraph 0026 that the liquid crystal module includes a port (element 122, the control source), wherein the lead wires connect the LED and Zener diode to the port.

With respect to claims 14, 18 and 21(New): Weindorf et al. disclose in Figure 2 a liquid crystal module comprising:

a body (shown in Figure 3, element 302); and

a circuit board (element 202, which corresponds to Figure 3 element 316) disposed on the body, having a substrate (Paragraph 0032), and

an LED (element 204); and

a Zener diode (element 206, wherein the Zener diode is part of the LED drive circuit as described in Paragraphs 0047-0048) wherein the LED and the Zener diode are disposed on the lead wires (comprising of at least a first lead wire and a second lead wire, since a LED and a Zener diode has at least two connecting pins) corresponding to each other in parallel on a first side of the insulating substrate (Paragraph 0030 and Figure 2, wherein the LED 204 is placed next to the control circuit 206).

Weindorf et al. fail to specifically disclose that the lead wires are enclosed by the substrate such that a plurality of openings are formed in the substrate exposing the lead wires.

However, Nakatsuka disclose in Figure 1(b) a substrate (element 2) enclosing a plurality of lead wires, including a first and second lead wires (elements 4a, 4b, 4c) and a plurality of openings (elements 6 and 7) in the substrate exposing the lead wires, such that semiconductor devices are able to be mounted and connected on either the same or opposite sides of the substrate (Column 6, lines 1-6).

Therefore, it would have been obvious at the time the invention was made to construct a liquid crystal module as taught by Weindorf et al. wherein a plurality of leads are enclosed by the substrate comprising of plurality of openings exposing the leads as taught by Nakatsuka, since Nakatsuka teach that such film carrier allows the forming of laminated structure of semiconductor parts with using only one single film carrier for connecting the semiconductor parts (Column 2, lines 35-47).

As to claim 22 (New): Nakatsuka further disclose in Figure 1(b) that the first and second lead wires (elements 4a, 4b, 4c) extend in a direction parallel to a top or bottom surface of the substrate (element 2).

Claims 4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weindorf et al. (US 2002/0130985) and Nakatsuka (US 6208521) in view of Mizuno (US 6398560).

Weindorf et al. and Nakatsuka disclose all of the limitations set forth in the previous claims, but fail to specify that the liquid crystal module body be made of plastic.

However, Mizuno discloses in Figure 11 a circuit board (element 26) disposed on a body (element 14), wherein the body is made of plastic (Column 7, line 56).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to construct a liquid crystal module as taught by Weindorf et al. and Nakatsuka with the plastic body taught by Mizuno, since Mizuno teaches that by using a plastic body, it has an easiness in forming or shaping or mechanical processing (Column 7, lines 56-58).

Claims 5-6 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weindorf et al. (US 2002/0130985) and Nakatsuka (US 6208521) in view of Kakuguchi et al. (US 2004/0254001).

Weindorf et al. and Nakatsuka disclose all of the limitations set forth in the previous claims, but fail to specify that the liquid crystal module can be used as a display of a mobile phone or a display of a personal digital assistant.

However, Kakuguchi et al. disclose in Figure 1 a liquid crystal display screen (element 21), which is used on a mobile phone and further teach that the same liquid crystal display screen can also be used on a personal digital assistant (Paragraph 0072).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the LCD module taught by Weindorf et al. and Nakatsuka into the electronic devices taught by Kakuguchi et al. so that having a liquid crystal display screen on a mobile phone or on a personal digital assistant would make it more convenient for the user to view the data within.

Response to Arguments

Applicant's arguments, filed Feb. 28, 2006, with respect to the rejection(s) of all claim(s) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Nakatsuka (US 6208521) as set forth above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. Patty Chen whose telephone number is (571)272-8444. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

W. Patty Chen
Examiner
Art Unit 2871

WPC
5/12/06

ANDREW SCHECHTER
PRIMARY EXAMINER